

# AVIATION WEEK

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AUG. 22, 1949



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### The Goodyear Trophy Race—Sept. 3, 4, 5

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## Whodunnit?

Must be mystery scheduled to be solved by the House Armed Services Committee investigation into the B-36 situation is who wrote the nine-page anonymous letter charging disloyalty in USAP procurement. It was this anonymous letter that was the basis for the speech on the House floor by Rep. James Van Zandt (R., Pa.), two-thirds of the probe.

Air Secretary W. Stuart Symington, in his blistering denial of the Van Zandt charges, told the committee that he knew "the cowardly man" who wrote the anonymous letter. Symington said it was "a sense of individuals who co-joined into a group," and was on the point of publicly identifying them when interrupted by committee counsel Joseph Korman.

Korman urged that the author's identity be withheld until the committee had all available evidence on the subject. Committee Chairman Carl Vinson (D., Ga.) pointed out the authors would be publicly identified and called to the witness stand to testify on their conduct in writing the anonymous attack on the Air Force high command.

Vinson also said he would publish a copy of the anonymous document with Van Zandt's speech to indicate their striking similarity.

## Ven's Philosophy

Industry observers will be interested in Gen. Fleet S. Vinogradsky's testimony to the House Armed Services Committee that "the aircraft industry is as yet not a science, although some people would like to have us think it is a science. In this between you must have faith in the position to be solved to go about with us idea."

"There were some people who had faith in the B-36 from the beginning and never lost it. When they were vindicated by the B-36 performance they realized the industry is as yet not a science."

## Fiscal 1951 Budget

National Military Establishment is now preparing its fiscal 1951 budget. Estimates are that the Navy will take the largest cut of the expense of its modern fleet buildups. These three establishments have never had a significant reduction from their wartime peak. Preliminary indications are that neither U.S. Air Force nor Navy

## Security Problem

Security leaks in the National Military Establishment on the B-36 performance were so bad that U.S. Air Force received permission from the then Defense Secretary James V. Forrestal to release data including B-36 performance data to the NME.

Air Secretary Symington declared that, although to the President's Air Policy Committee, adding that the B-36 performance data submitted to NME consistently leaked to the press in a distorted form calculated to discredit the plane and USAP.

Symington testified leaks were so frequent that sometimes the "Postage seemed like a cure."

Aircraft procurement will here will under the fiscal 1951 budget.

Strong congressional revolt against President Truman and the Budget Bureau's slashing of an air power came to be the only hope for a reversal of the decision from the 1948 point of both civil and military air power.

## Procurement Power

Testimony of top USAP officials before the House Armed Services Committee confirmed earlier unofficial estimates that Air Materiel Command at Wright Field is having less and less to say on major USAP procurement decisions.

These decisions are now made by the Senior Officers Board composed of Gen. Max Fritchell, USAP vice chief of staff, Lt. Gen. Benjamin Chidister, who replaced Gen. Joseph McNery as commander of Air Materiel Command, Lt. Col. Gen. Lewis Newell, deputy chief of USAP staff for operations, and Lt. Col. Gen. Howard A. (Pinky) Craig, deputy USAP chief of staff for material.

The board, also known as the Fritchell Board, replaced the 16-man Air Staff and Weapons Board last fall as final arbiter on USAP top level policy, including procurement.

Armed and Weapons Board was replaced because of persistent leaks to newsmen, among other reasons. It was established in August, 1947, when Lt. Gen. LeMay was USAP director of research and development. Maj. Gen. Fredrick H. Smith, Jr.

testified that on the last major shipment of USAP aircraft contracts last April the Washington post was notified of the changes a day before Air Materiel Command was instructed to carry out the contract cancellations decided on by the Fritchell Board.

## Audience Bored

B-36 investigation hearings have attracted the largest collection of aviation buffs to appear in Washington since the President's Air Policy Committee hearings two years ago.

Among the regular spectators Oliver P. Eklund, chairman of the board, Northrup Aviation Inc., Merrill (Rube) Meigs, former head of the aircraft section of War Production Board, Vice Admiral Arthur W. Radford, now commander of the Navy's Pacific Fleet and a latter representative of the B-36, most of the aircraft industry Washington representatives, a delegation from the Aircraft Industries Assn., and Harold Mosier, Washington representative of the Glenn E. Morris Co.

Air Secretary W. Stuart Symington was a frequent spectator at all the sessions. Former USAP Chief of Staff Gen. Carl Spaatz, who will be called as a witness, is covering the hearings from the possible as a representative of Northwest Magazine.

Radford and his two advisors, Capt. Arthur (31-knot) Barks, Pacific war hero, and Capt. Tom Davies, pilot of the Tusneft-Turbo on its record 11,739-mile nonstop flight and expert on naval hardware have been given special seats next to the witness stand at Chairman Vinson's request. Radford is scheduled to testify sometime during the hearings.

## ECA Row

Similar opposition to the policy of subsidizing foreign military competition for U.S. surplus came through ECA growth is mounting. Forty-nine nations—a majority of the Senate—used their letter of protest to the President against the President's U.S. bilateral agreement as a spearhead also to discredit the ECA policy.

They commented that the executive branch, in negotiating the bilateral pact, involving "major and enormous disarmament savings in U.S. expenditures" apparently "purposely the one has of doubling which led the ECA to allocate almost \$10 million for direct subsidy for... foreign aircraft which are in competition with U.S. air carriers."

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## AVIATION CALENDAR

Aug. 12-23-ARTC, section division meeting, Boeing plant, Seattle, Wash.  
Aug. 21-26-American Institute of Electrical Engineers, Pacific general meeting, Fairmont Hotel, San Francisco  
Aug. 25-28-Flying Farmer national convention, Ford Collins, Calif.  
Aug. 29-Sept. 1-Aeronautical Ann., annual meeting, Hotel Waldorf, N. Y.  
Sept. 1-7-International conference of Fellows, Aeronautics International, Wembley Park, London, England  
Sept. 1-5-1949 National Air Show, Cleveland Ohio  
Sept. 5-21st annual meeting, Early Birds Club, Cleveland  
Sept. 6-8-Annual speak plug and speakers conference, sponsored by Chrysler Corp., Hotel Cecil, St. Louis, Mo.  
Sept. 7-11-19th Society of British Air Craft Constructors flying display and exhibition, Farnborough Airfield, Hampshire, England  
Sept. 8-12-Close on commencement of industrial armistice, International Society of America, Hotel Waldorf, N. Y.  
Sept. 11-12-Delegation, China, U. S. national air group  
Sept. 12-16-1949 convention meeting, International Air Transport Ass'n, Hotel, Rotterdam  
Sept. 14-15-20th annual defense meeting of NACA, New York City  
Sept. 15-20-International Northern Air Show Council convention, Spokane, Wash.  
Sept. 22-25-1949 CAA CAA biannual meeting on CAA, 40 defense and transportation, Hotel Statler, Washington, D. C.  
Oct. 1-4-Tenth anniversary meeting, North States, Wichita Falls, Texas  
Oct. 1-4-RAI national association meeting and general engineering display, Edgewater Hotel, Los Angeles  
Oct. 7-10-American Air Mail Society, exhibition and convention, Edgewater Beach Hotel, Chicago  
Oct. 12-15-4th Russian Air convention, Long Beach, Calif.  
Oct. 15-15-1949 conference on airport management and operations, sponsored by University of Oklahoma and Southern Flight magazine, Norman, Okla.  
Oct. 17-18th NACA biannual convention meeting, Dayton, O.  
Oct. 18-19th NAC annual meeting, Wembley Park, London, O.  
Oct. 20-23rd annual San Francisco Air Fair, sponsored by Juvenile Chamber of Commerce, San Francisco Airport  
Oct. 20-Nov. 2-Annual convention, National Ass'n of State Aviation Officials, New Orleans  
Nov. 9-11-Seventh annual meeting Airline Manufacturers Association, Fairmont Hotel, New York City  
Nov. 15-15, 1949-4th National Air Show, Miami, Fla.

## PICTURE CREDITS

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## PLANE FAX

**first in U.S.!**

## POWERFUL NEW GASOLINE ENDS TAKE-OFF KNOCKING



**Improved Chevron Aviation Gasoline now has minimum certified 80/87 rating**

*New gas meets need for take-off  
anti-knock rating*

Before new Chevron Aviation Gasoline was perfected (and 80/87 only the higher octane aviation and military grade fuels had specified take off anti-knock ratings as well as cruise ratings). So improved Chevron (80/87) represents the first control of this vital gasoline quality - and answers a definite need for controlled anti knock rating during take off.

*Parasit every test*

New Chevron Aviation Gasoline (80/87) is the result of exhaustive flight tests in the popular makes of personal planes. These tests included detonation, fuel volatility, economy, vapor lock and other engine performance characteristics.

**Guaranteed anti-knock rating under all take-off conditions.** Good news for all private flyers! Chevron Aviation Gasoline's controlled take-off anti-knock energy of over 87 will virtually eliminate the twin dangers of detonation and possibility of pre-ignition. That means smoother, quieter, safer take-offs... and less wear on your engine's vital parts.

### Big savings for engines re-rated from 91/98 fuel to 80/87

One leading aircraft engine manufacturer already has approved Chevron Aviation Gasoline (80/87) in engines for which 91/98 fuel was previously specified. This will cut expenses two ways - lower fuel costs, lower maintenance costs. That's because the new Chevron 80/87 grade contains only 1/8 as much lead - and will keep engines running freer and cleaner with fewer contaminants.



Standard Oil Company of California

## WHO'S WHERE

### Ebel Goes to Canada

Canada Ltd., Montreal, has decided to reorganize its own aircraft design and has appointed William K. (Ken) Shaw to head the project with the title of vice president, engineering. Since the end of the war, the company has been manufacturing other aircraft under license.

Chel takes with him to Canada 27 years' experience in aircraft design, beginning with Cessna's E. Martin Co. About two years ago he left Martin, where he was v.p.-engineering, to become director of engineering of Cessna's Wheel's aviation division at Columbus.

## Promotions

TWA has moved up R. W. Ransell to post of chief engineer; he has been manager of aircraft procurement. He succeeds E. R. Kozelski who recently retired.

Robert O. Kasey is the new director of GAO's Alaska office, stepping up from the job of assistant director upon the resignation of Raymond W. Straugh, who has retired. Kasey has been in the Alaska office since 1987.

**Jackson E. Knight** has been named assistant sales manager of Sikorsky aircraft division of United Aircraft. A former Air Force helicopter pilot, he has been with Sikorsky for a little more than three years, concentrating on military sales.

T. R. Nolan, Northwest Airlines' representative of cargo sales, now is assistant director of cargo traffic. F. B. Law has been appointed assistant to the manager of main-

increasing of General Electric's automation and software systems divisions GE also promoted Martin R. King to manager of the aerospace test division, succeeding C. P. Fisher, Jr., who becomes manager of a new propulsion division. Western Air Lines has moved up H. S. Gray to acting director of the budget from his former job as manager of revised delays and cost accounting.

### Other Changes

TWA redefined responsibility in the cargo sales division, following resignation of R. E. Whitaker as director of cargo sales. S. E. Ross, manager of cargo sales, is made responsible for international air cargo and searail, and for domestic air freight. W. E. Finkel, manager of U. S. air mail and express, will have charge of domestic air mail and air express.

**John E. Winkley** has been appointed history superintendent of Pacific Aerospace Corp.'s Burbank plant, replacing **K. M. Reed** who has been transferred to the Anchorage division. — **John M. Rogers**, vice director of military sales for Douglas Aircraft has resigned after 15 years with the company. — **George L. Ladd** has been named production engineer and **Blownd W. Casey** sales engineer of Fawcett E. & A's Al-Fin division. — **Ralph W. Roemer** is setting up traffic superintendent of Pan-avi at El Paso.

## INDUSTRY OBSERVER

Boeing's XB-72 definitely being grounded by the U. S. Air Force as the successor to the Convair B-58 was an intercontinental bomber. The B-52 design now looks like an enlarged B-47 with eight jets instead of the B-47's six turbojets. The XB-52 will have two jets on an offboard wing nacelle while the B-47 now carries only a single jet. Plus now it is power the XB-52 with the giant X-57 turbojets being developed by General Electric and designed to have a thrust rating well over 10,000 lb. B-52 is scheduled for production in 1974.

▶ Westinghouse and General Electric are both working on new model jet engines aimed at producing 10,000 lb static thrust. Westinghouse is considerably ahead of GE in this development but both engines are being scheduled for late production models of military aircraft now in early phases of production.

McDonnell is working on a next lighter version of the Banzhoo (B-26-B) which is expected to be in service with the Navy by 1956. While the House Armed Services Committee was investigating the high altitude performance of the Corsair B-36, the Navy had a Banzhoo taking pictures of Washington from 45,000 ft. Later the Banzhoo hit a maximum altitude of 52,000 ft. on two separate occasions. Last, Tate of Pittsburgh Rivers, Md., Naval Test Center was the pilot.

U.S. Despite its unimpressive record as the Northrop B-49 jet flying wing, U.S. Air Force plans to continue experimental development of this type. USAF planners viewed the B-49 as a harbinger because its size and price characteristics made it too suitable a bombing platform. However, when the B-49 production program was planned to use the jet flying wing in a strategic reconnaissance program, funds were allocated to develop medium experimental flying wing jet bombers. Thus new experimental flying wing bomber was developed and the B-49 jet flying wing was cancelled. The B-49 was cancelled because the B-49's 18-ft-11-in. chord built by Northrop but now being cancelled for stress, fatigue and turbulence powerplant installations.

✶ Log USAP strikes appearing before the House Armed Services Committee confirmed AVIATION WEEK'S earlier report that the USAP night fighter program had not yet produced a satisfactory pilot in this class. Gen. George Kenney and Lt. Col. Carlo LeMay testified that neither the United States nor any other country now had a night fighter capable of making interceptions in darkness or had weather above 40,000 ft. Kenney and the Northern Black Widow (F-3) was the best USAP night fighter now in service but that it was not effective above 30,000 ft. LeMay testified that there was no indication that either the British or Russians had an effective high altitude night fighter.

► Boeing's B-94 bomber was to have been a completely redesigned B-92 type. USAF generally told the House Armed Services Committee in order to rule the Pratt & Whitney ADF powerplant plus additional fuel to give it an 8000-mi. range, the B-94 required longer wings and fuselage and a tandem wheel landing gear. It could not have carried the new USAF side loading system without major redesign of the fuselage and elimination of some defensive armament.

USAF generally is constrained under AVIATION WEEK reports that the primary fix in the VDT program (in tactical terms) was the existing problem of extreme altitudes over 40,000 ft. USAF growth and number Corbin Propeller division, General Electric, and Pratt & Whitney had been able to develop a satisfactory solution to the problem of high altitude cooling for the VDT. However it still has considerable application in the field of medium altitude transports where it is expected to produce a 20 percent saving in fuel or a 20 percent increase in range with minimum fuel capacity. Boeing C-97, Douglas C-124A and the Fowch SE380 are likely to use the VDT program.

• Early bugs in the Convair B-36 centered around the engines where cooling difficulties were encountered over 30,000 ft, the wing flap system which had to be redesigned, the landing gear, and propellers.



*Ryan tried them all!*

**—and picked the RCA One-Sixteen.....  
for the '49 Navion**



The RCA ONE-SIXTEEN is standard equipment in the '49 Navion.

In one of the most elaborate comparative tests ever made on personal or business plane radios, this compact, single-use transmitter outperformed everything in the field. It passed all the rigid inspections in the Ryan laboratories. It stood up to every test in the sun. And it was voted top choice by impartial engineers, flyers, and plane owners who were invited to fly it themselves.

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- EVERYTHING IN ONE PACKAGE**
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  - **Interphone**—For large cockpit, or two cockpits.
  - **Loop Shielding**—Operates on either broadcast or beacon bands with any RCA loop.

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In Canada: R.C.A. (Canada) Company Limited, Montreal



SYMINGTON asked proof of... VAN ZANDT's charges, while... VANDENBERG said Symington and committee only B-36 would do.

## New B-36 Performance Revealed At Probe

**USAF tells secrets to support bomber's purchase as Symington, Van Zandt clash.**

By Robert Elster

Seventeen new performance figures for the Convair B-36 intercontinental bomber were revealed to the House Armed Services Committee during its investigation of U. S. Air Force strategy and procurement.

New B-36 data included:

- **Top speed** of more than 415 mph and altitude of more than 50,000 ft. have been attained by the B-36 prototype equipped with two jet engines housing four General Electric J-47 (5200 lb thrust) outlays.
- **Scheduled combat mission** of well over 10,000 miles has been flown non-stop without aerial refueling by a B-36 of the Strategic Air Command. Bomb load of 10,000 lb. was dropped well beyond the 5000 mile mark.
- **B-36B** has flown 6666 miles above 40,000 ft. averaging 300 mph. This mission covered considerably more mileage above 40,000 ft. than would be required for maximum penetration to Russian targets.
- **USAF** plans to purchase an additional 75 B-36s during fiscal 1950-51 to bring total B-36 strength to 249 planes, deployed in four bomb groups and two strategic reconnaissance groups. Total of 25 are scheduled for purchase

in fiscal 1951 with 51 scheduled for the fiscal 1951 budget.

• **Close control techniques** developed by Strategic Air Command make a range of 32,000 miles for the B-36 "real within reason."

### B-36 Types

- **XB-36**—First experimental model.
- **YB-36**—Production prototype.
- **B-36A**—First production model 22 built, powered by six Pratt & Whitney 3500 hp Wasp Major engines.
- **B-36B**—Second production model, 74 on order, powered by six P. W. 3500 hp Wasp Major.
- **B-36C**—Twelve version to have been powered by the P. W. VDT powerplant, later cancelled, most built.
- **B-36D**—Third production model featuring four General Electric J-47 (5200 lb thrust) turbojets in addition to the six 3500 hp Wasp Major, 130 on order.
- **B-36E**—Reconnaissance version of the B-36D, 79 on order.

• **B-36** bombers of the Eighth Air Force have already flown simulated missions against targets duplicating all possible top priority targets in the European land mass. Results of these missions have convinced Lt. Gen. Curtis E. LeMay, SAC commander that the B-36 would be effective against these targets in wartime.

These data were presented during five days of hearings on Capitol Hill discussed by two sharp clashes—now between Air Secretary W. Stuart Symington and Rep. John W. Van Zandt (R., Pa.) and the other between Gen. George Chaffin Kenney, commander of the Air University, and Lt. Gen. Curtis E. LeMay, who succeeded Kenney as commander of the Strategic Air Command.

• **Symington** says—Symington took the offensive against Van Zandt on the first day of the Washington hearings. LeMay asked panel tests and gaffes. Obviously angry to the core Symington demanded that the Pennsylvania congressman and Naval Reserve captain who interrupted the B-36 investigation, produce proof of his charges against Symington, the Air Force high command and Defense Secretary Louis Johnson.

Flashed again by newspaper columnist Carl A. Hiaasen (D., Ga.) Van Zandt admitted that he had nothing but newspaper clippings and a one page memorandum letter charging irregularity in B-36 procurement to offer





## Backlog of Military Airframe Orders

May 31, 1949

As reflected by 13 leading aircraft manufacturers in the Aircraft Industries Assn., and in accordance with earlier secretary instructions outlined under Department of Commerce, Bureau of the Census, Form M410 Engines and propeller backlog are not included in these military airframe figures

	Total Air Frame & Navy	% of Total
Boring	\$101,977,825	17.4
Consolidated	245,610,570	14.0
North American	212,810,876	13.6
Douglas	150,870,000	10.9
Grumman	170,080,600	9.7
Lockheed	146,481,000	8.4
McDonnell	75,494,810	4.3
Griffith	71,244,771	4.2
Fairchild	70,930,000	4.0
Northrop	70,216,404	4.0
McDonnell	67,591,560	3.8
Republic	46,342,700	2.8
Carroll Wright	6,669,912	.4
Other Manufacturers*	94,300,000*	2.5*
	\$1,718,061,123	100

\* Calculated for Bell, Beech, Ryan, Cessna, etc., having direct airframe production contracts in miscellaneous amounts with either the Air Force or the Navy in both

## Fiscal '51 Budget Being Trimmed

Contemplated slashes seen holding USAF to 48 groups indefinitely. Resultant strategy shifts disclosed.

Further stream cutbacks in military aircraft procurement will be attempted in the fiscal 1951 National Military Establishment budget now in preparation.

The contemplated slashes are the result of a lower military budget ceiling imposed by President Truman, and Defense Secretary Louis Johnson's promise to pace the military budget by at least a billion dollars from its fiscal 1950 level. Washington observers point out that an extraordinary economy record in the Defense Department would be a valuable political talking point if Johnson plans to seek the Democratic presidential nomination in 1952.

■ **Cut Revealed**—The forthcoming cut was revealed during hearings of the House Armed Services Committee investigating U. S. Air Force strategy and procurement. Air Secretary W. Stuart Symington testified that USAF personnel plan draws as severely as Feb. 20 call for being \$709 new aircraft during fiscal 1949, 1950 and 1951. This plan means that procurement for fiscal

1951 will be cut to approximately 3225 planes, or only about half the fiscal 1949 procurement level.

USAF has contracted for 2414 planes out of fiscal 1949 funds and the President's fiscal 1950 budget calls for just one of 1669 new USAF aircraft. Pace of the 1950 budget is still in doubt with strong congressional support for a substantial increase in USAF procurement funds.

■ **U. S. House Ceiling**—The 1226 plane procurement level for fiscal 1951 indicates that President Truman and the Budget Bureau contemplate halving USAF to a 48 group level indefinitely. They apparently will not carry out the USAF expansion to 78 groups so strongly urged by the President's Air Policy Commission and the Joint Congressional Air Policy Board. Both groups recommended that the 78 group expansion be completed by 1952. The budget cuts already imposed by the President now make it virtually impossible to complete the 78 group program before 1954.

Detailed discussions by USAF officials during the hearings show the level decreases made only in 1949 now make it possible for the first time to have recent shifts in air strategy and their effect on air frame contracts.

■ **Boeing On Edge**—Despite reallocation of some \$573 million in military aircraft contracts during the past few months, Boeing Airplane Co. retained its place at the top of the manufacturers' heap with 17.4 per cent of total military airframe business and 28 per cent of USAF aircraft contracts.

Grumman vaulted into second place largely as a result of its B-36 program, with a current backlog totaling 14 percent of all military aircraft business and 20.4 percent of USAF aircraft contracts. Other companies, with their percentage of total military airframe business, are: North American (12.5), Douglas (10.9), Grumman (9.7), Lockheed (8.4), Martin (4.5), United Aircraft Corp. (4.2), and Northrop and Fairchild with 4 percent apiece.

■ **Continues**—Secrets—Symington pointed out that both USAF and Navy distribute 60 per cent of their business among the top six contractors to each service. Only Lockheed and Douglas, among the military manufacturers, have extensive business with both services.

Symington and Maj. Gen. Frederic H. Smith, Jr., USAF Deputy Program Director, revealed for the first time details of the top secret evaluation at which the internal research, development, design and fiscal policy changes were revealed that resulted in changing 5773 military airframe contracts.

■ **Technical Cut-Instituted**—USAF aerial liaison in its fiscal 1950 procurement program ended in October, 1948. It was dictated by technical difficulties encountered with the experimental model of the Carver-Wright XF-87, a fighter jet capable of flying at 6000 feet per second. The program was canceled. A 570 million allocation to Republic Aviation Corp. for an additional 100 F-84s was withheld.

The 5110 million reserved was used to buy 48 Northrop F-89s, 110 Lockheed F-94As and 100 T-33s. Fairchild lost.

With the publication of President Truman's fiscal 1950 budget proposing a 48 group ceiling on USAF, a complete revision of USAF strategy and program policy was required to cut back the program from its then current strength of 78 groups and contemplated expansion to 86 groups.

■ **Boeing Meets**—The first time, Senate Officers Board (who knew as Fairchild Board) which had replaced the 16-man Aircraft and Weapons Board on the top-level USAF policy-making group

begun meeting on Dec. 29, 1948, to consider these program problems.

1. **Cut 11 bomber groups** from the current 39 group USAF strength and eliminate aircraft being procured for those 11 groups.

2. **Divide** in request of East. Gen. Curtis LeMay for an increase of two heavy bomber groups and one strategic reconnaissance group of Strategic Air Command, all three groups to be equipped with B-350 and B-40 B-350s. LeMay proposed to substitute the two new heavy groups for five medium bomber groups equipped with Boeing B-50 or B-54 aircraft and one strategic reconnaissance group. The new bomber groups would be equipped with Northrop B-49 jet flying wings.

3. **Find money** to finance the additional groups requested by SAC by LeMay. Budget team, after acquiring financing, if the Senate Officers Board backed LeMay, was studying all B-36s by the addition of four jet engines.

To ease the cash problem the Board dropped the medium bomber groups, three light bomber groups, five fighter groups, three tactical reconnaissance groups and four transport groups. This reduced the USAF from the 66 groups authorized for June 30, 1949 to 48 groups demanded by the President.

This decision meant cancellation of the following contracts: \$105,500,000 with North American Aviation Inc., carrying B-36 in contract for 193 B-45 fighters to be built by 1950. These planes were to have been used in equipping the three light bomber groups and part of a night tactical reconnaissance group.

\$157,910,000 with North American Aviation for only the 118 B-45 fighters to be built by 1950. The Board recommended that only one of the three night tactical fighters then under development—F-93, Lockheed F-90, and McDonnell F-106—be produced initially and that further procurement of the latter be cancelled pending a new competitive evaluation of the trio.

The Board recommended that a new strategic type be developed (A-10), and that the B-36 be cut from the inventory both the Republic F-84 and the North American F-86 be used in both penetration and intercept roles.

The Board also approved LeMay's request for adding two heavy bomber groups of B-36Ds in SAC and switching from B-29s to B-36s for one strategic reconnaissance group. This meant cancellation of the following contracts:

■ **\$58,200,000** with Northrop Aircraft for eliminating the B-49 group all flying wings.

To get additional money needed to finance the purchase of 12 additional B-36Ds for the two heavy bomber groups and 7 B-49s as a start on the recon-

## Distribution of Airframe Backlogs

May 31, 1949, as submitted by the companies to the Aircraft Industries Assn. Engines and propeller backlog figures are not included.

AIR FORCE			NAVY		
	Amount	% of Total		Amount	% of Total
Boring	\$111,944,621	20.0	Grumman	\$199,000,000	23.9
Consolidated	227,424,499	20.4	Douglas	134,799,000	16.0
No Aster	166,187,076	18.9	Lockheed	73,834,008	14.5
Griffith	75,671,000	6.9	United	70,195,718	11.1
Lockheed	75,671,000	6.6	McDonnell	40,414,111	10.3
Northrop	70,154,000	6.3	McDonnell	47,414,015	10.6
Approximately 13 other companies = "Rest" 16.9			Approximately 9 other companies = "Rest" 16.2		

\* Exact backlog backlog figures are not available for some of the smallest aircraft and engine manufacturing firms, but the error would probably be less than 1% of the total.

naissance group, the Board cancelled the following contracts: ■ **\$4,940,000** with Northrop for 20 C-125B transport aircraft. Transport Board recommended a new evaluation between the C-125B and the C-47A C-122A aircraft.

■ **\$4,811,000** allocated for production of 10 Lockheed designed H-10 helicopters. Company had been asked to manufacture the Kelted design.

■ **\$2,260,000** with Cessna for prototype Y1-32A, a bomber-type reconnaissance aircraft of the C-47 type. This series of cancellations totaled \$314,009,000. Allowing \$44,300,000 for cost of cancelling these contracts, the Senate Officers Board figured an \$189,709,000 saving. This figure, however, did not include the fact that the new B-36 program. The Board proposed to use \$172,949,000 to keep the B-36 authorized 850.

In drawing up detailed plan for five programs, the Board decided on the 22 B-36s to B-36B by using later model 1950 jet Pratt & Whitney jet engines plus four turbojets and adding the jet pods to the 7 B-36Bs then under production. Cost of this program was estimated at \$182,009,000. Using up the remainder of the \$399,751,000 for the program left a sum of \$167,751,000 that would have to be obtained from future appropriations to complete the program.

The Board also recommended transferring funds from the fiscal 1950 budget for purchase of additional B-36 B-47 jet bombers and B-44 (YF1) powered fighter aircraft. On Feb. 7 1949, Gen. LeMay sub-

mitted a memo to the Air Staff requesting review of the B-36 production program with a view toward its cancellation. LeMay then appeared before the Senate Officers Board on Feb. 21 to urge for B-36 cancellations. The Board determined that the B-36 with jet pods would be faster, operate at greater altitudes, and carry a heavier bomb load over greater range than the B-36. It was also found that the B-36 could not accommodate the latest radar bombing system without changing the bomb turret to extensive fuselage redesign.

LeMay stated that if he could not have additional B-36s he would prefer that the Boeing B-47 jet bomber be produced. He stated that the B-36 was not a good investment. He felt it could reach significant stages through the aid of aerial refueling. Flight test at that time of the X-4B had produced "impressive results." LeMay also pointed out that the B-36 was one of the 329 series jet that have been damaged or spent in March 1949 tests allowing no further room for growth beyond the B-36 while the B-36 could be modified to improve performance without huge design changes.

Senate Officers Board was reluctant to approve LeMay's second set of recommendations. Gen. Vandenberg agreed to cancel the B-36 contract but was not willing to put the money into more B-36s. The Board agreed to cut off the B-36 production program at the 43 planes allocated for fiscal 1949 procurement, pending a further review. LeMay was recalled before the Board

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in March 8, 1948. At that time he urged increasing the size of B-36 groups from 18 to 30 planes because initial experience with tactical groups of B-36s indicated that that number could be handled by actual group personnel with the addition of jet engine mechanics required for the pods.

The Board then decided to approve LeMay's recommendation and one called the following contract: \$1275,937,000 with Boeing Airplane Co. for 45 B-54 VJST-powered bombers.

This money plus an additional \$62 million from unallocated funds was used to purchase an additional 36 B-50D bombers and five more Boeing B-47 bombers. The strategic bomber program group originally scheduled to receive 34 B-47 aircraft was reduced to 18 B-47s.

This action provided Strategic Air Command with increased capabilities to begin equipping four B-50D bomber groups of 30 planes each and two strategic reconnaissance groups of 18 B-50s with 30 planes apiece and a total of 170 B-36 bombers and more numerous planes on order at a total cost of about one billion dollars.

USAF plans to purchase an additional 75 B-54s out of fiscal 1950 and 1951 funds, bringing the total to 249 planes.

## One Bell Union Returns to Work

A break in the two-man trust against Bell Aircraft Corp. has brightened the company's chances of mounting full-scale production.

For more than two months, Local 516, UAW-CIO, has had its 1790 production and maintenance workers out on strike for a 30-cent hourly wage increase, a pension plan and other benefits. About 500 technical workers, members of another UAW-CIO Local 516, refused to cross the picket lines.

Back-To-Work—last week, members of Local 516 returned to their jobs, adding to the company's "back-to-work" drive. The break came as a 45-hour clock meeting during which Local 516 voted to ratify a two-year contract with Bell and agreed a previous resolution against returning to work if the company employed strikebreakers.

Violence and union union demonstrations marred a previous company attempt to reopen the plant. More than 7500 employees, according to a union disclaimer, were on hand to prevent strikers from entering the plant. Bell officials claimed 1023 employees crossed the picket line, including nearly 100 men born of the striking Local 516. The union denied any mention of the local reported for work.

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## Racing Man's Imagination to the Moon

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Fantastic? No! The only thing that approaches the fantastic aviation-wise is the tremendous progress the industry is making. In a few short years, speeds surpassing sound and almost unbelievable heights have been reached.

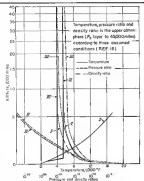
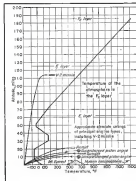
Aviation's engineers and scientists have been hard put to keep pace with man's space-conquest imagination. But they are doing it. And since Peeco manufactured its first hydraulic pump 16 years ago, our engineers have worked side by side with aircraft engineers helping to create many of the vital accessories for jet and reciprocating engines and aircraft that are making faster speeds and greater heights attainable.

Reach the moon... reach other planets? It may not be long now!



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## AERONAUTICAL ENGINEERING



## What Upper Air Means to Missiles

Rand Report details some of problems designers have to face in planning vehicles to operate at 300-mile altitudes or beyond.

By Robert McLarnon

The rocket missile, independent of the atmosphere for its power, may be dependent upon that same atmosphere for speed and direction up to altitudes of thousands of miles. While formerly it has been popular to assume that the missile leaves the earth's atmosphere at some comparatively low altitude, theoretical calculations now indicate that this assumption runs not be valid and that atmospheric forces may play a role in the missile's flight, regardless of how high or fast it travels—even the escape rocket.

The earth is surrounded by a layer of air, known as the atmosphere, and we live at the bottom of this ocean of air. So said ancient men, but quaterns of how high that atmosphere extends, its composition and variation of temperature, pressure and density

within that atmosphere was poorly understood until the Von Karman began his flights to London. It studied altitudes of 30 mi. or more, and reached a new era—the era of the missile.

The heart of the earth's atmosphere is an expression in daily common use today in semi-technical literature, but one that is meaningless until it is placed in some form of reference. For example, in terms of the air we breathe, this heart is about 24 mi. for maintenance of comfort and adequate activity. For instance, this limit is about 41 mi. above which man loses consciousness.

Peeco Engine Power-Performance of the atmosphere compensating engine, at constant speed, rises linearly with the altitude density ratio. Extra portions of power drawn through available data indicate power drops to zero

at an altitude of 100 mi? A more practical value, however, is the altitude where engine power drops below that required to power the airplane in which it is installed, or absolute engine ceiling.

Through the use of compensating engines, and based on equipment now in use, power of a turbo-propeller compensating engine will drop to zero at about 13 mi. Again, however, the absolute engine ceiling will fall considerably below this value, the difference being proportionately greater in the case that the atmosphere compensating engine is primarily utilized, because of the greater thrust. Although the power required for high speed is substantially less at high altitude than that required to attain the same speed at low altitude, the minimum power required is greater at high altitude due to the increased stalling speed of the plane.

► **Turboprop, Kauger**—Because of its dependence upon high speeds for production of power, it is difficult to keep its blades rotating to the turboprop. Weight of air delivered to the compressor is a function of the inlet velocity and compressor pressure ratio. Thus, a turboprop engine operating in a very hot region would continue to function at a higher altitude than the more engine in a denser fluid. However, some data indicate that the power of a typical piston-day turboprop drops to zero at about 141,000 ft.

The higher wing loading of the turboprop-powered lighter further augurs the misgivings between engine and airplane designer. The latter is concerned. Therefore, in the case of airplanes, the absolute engine ceiling is not to be taken as having more than a cursory relationship to airplane ceiling.

Power of the prop is dependent on its flight velocity, since it constitutes an air pressure generated by this velocity. Thus, absolute ceiling of this powerplant is a function of its speed. Calculations indicate, however, that at a speed of 2,500 mph the propeller is capable of operating at altitudes as high as 20 mi.

► **V-2 Data**—An apparent "limit of the atmosphere" is that altitude above which aerodynamic forces are too low to make control surfaces effective. This altitude depends, of course, on the speed of the vehicle, angular movement of the control and the lift characteristics of the control. Captain Gurnea's calculations on a related, more definite, concept have indicated that pilot would have an effective control above an altitude of about 28 mi; and, conversely, control could not be expected on the falling portion of the flight until the missile had dropped below 28 mi.

These same data, together with subsequent information obtained on captured missiles at White Sands, New Mexico, indicate that the aerodynamic tabs on the fuel nozzles flew off the V-2 less than effective at altitudes ranging from 11 to 16 mi. Above this altitude, the V-2 flew along at about 1,000 mph and its direction to the altitude and its low weathered it into a symmetrical flight.

► **"Lifted" Values**—For a more liberal definition of the limit of the atmosphere, only indirect observation and theoretical calculations are available. Missions are theoretically limited by the entrance of orbital fragments into the earth's atmosphere, where they burst into flame at a rate of their great heat. These have been observed at an altitude of 124 mi. On the theory that atmosphere is required to reflect light, its height has been observed at 224 mi by measurements of radar.

Theoretical calculations on the basis of the familiar inverse square gravity

Exponents are finding by theoretical means that the speed of sound is not the only barrier to supersonic, supersonic speeds.

Increasingly high temperatures and atmospheric as they rise, an aircraft's aerodynamic control surfaces are more of the aerodynamically heated surface facing direction of rocket motion.

How to make surface lift, distribute structure that won't melt and deliver maximum and equipment that won't disintegrate under these difficult conditions has become not an afterthought but of very pressing concern to engineers.

Accordingly, American Warrenton is here, for the first time, a clear picture of the future of the future. Report that presents analysis of the atmosphere to its limit in outer space.

line and separation of the leading edge at which the gravity and centrifugal forces exactly balance each other, thereby producing a maximum density, give a limit of 21,126 mi to the "strong" limit. And if it is assumed that there is no variation of gravity with distance, no variation of temperature with altitude, and a planet in stationary position, its atmosphere would extend to infinity.

What, it is clear that the "limit of the earth's atmosphere" lies at an altitude somewhere between 24 mi and varying depending upon the definition used. And it is this wide disparity in values derived from different concepts that caused the need for a "standard stress plane" so that aerodynamic calculations could proceed on a common basis.

► **Standard Atmosphere**—The first set of tables prepared for a standard atmosphere and approved by a representative official group appeared in 1923. These were based upon a variety of balloon and rocket readings taken at St. Louis in 1904 and contained at Gurnea in 1911 and 1914.

Then, the tables were based upon the average of actual readings, rather than a simple arbitrary set of values. They were corrected on the basis of the formula derived by A. Toussaint, noted French meteorologist. This formula was an early use in Europe, and U. S. adoption simplified the problem of its internationalization.

Toussaint's formula produced mean sea level values of 1013.25 mb, 29.92 in. Hg, and density, 0.001293 lb per cu ft, these being the mean values still in use today. These values were extended to an altitude of 75,200 ft, or 14.3 mi. Toussaint's formula and to 65,000 ft on the basis of balloon and rocket readings obtained by the U. S. Weather Bureau.

In 1927 Walter S. Dabell, of the Navy Bureau of Aeronautics, expanded Toussaint's

method to 65,000 ft, using these assumptions: The air is dry, it obeys the perfect gas laws of Charles and Boyle, gravity is constant, temperature of the molecular mass plane above 55,112 ft is  $-63.7^{\circ}\text{F}$  (same value used today). Then, in 1933 the NACA standard atmosphere was officially approved by the Army, Navy, and Air Corps, and has been used for the selection of observed performance data ever since.

► **Altitude Record**—In January, 1946, the NACA Panel on the Upper Atmosphere extended the standard atmosphere to 100,000 ft on the assumption of a constant composition of the atmosphere and an isothermal temperature of  $-63.7^{\circ}\text{F}$ .

In April, this Panel was superseded by the NACA Special Subcommittee on the Upper Atmosphere, which extended the standard atmosphere to 193,200 ft. Two sets of tables were prepared, one based upon a constant acceleration of gravity (and therefore an extension of the earlier standard atmosphere tables) and the other based upon a variation in the acceleration of gravity with altitude. Comparison of the two atmospheres was assumed constant up to about 262,000 ft, after which the oxygen dissociated until 328,000 ft, at which height it is assumed complete dissociation has taken place and molecular oxygen has been replaced by atomic oxygen.

Thus, a standard atmosphere is available from sea level to about 75 mi, more than adequate to accommodate performance calculations for winged aircraft, but almost inadequate for many uses to come. But with the captured V-2 and other missiles already passing the 100 mi altitude level, it is clear that further extension of the standard atmosphere is necessary.

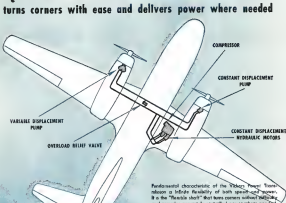
How far into space it is necessary to extend to know the conditions of the atmosphere? Based upon present missiles and those now undergoing serious design, it would appear that the practical limit of atmospheric conditions will be somewhere between 100 and 100 mi of altitude. But is this enough?

► **Project Read Origin**—Examination of captured German scientific intelligence and information of German scientists by U. S. and British combat intelligence teams shortly after V-E Day indicated that the Nazis actually had a power law on orbital rockets, or "artificial satellites."

Paradoxical as such a device sounds to the layman, it is theoretically practical. A rocket is designed with enough power to produce "escape velocity," about 25,000 mph. At an altitude of one hundred miles its power would be shut off and it would continue on orbit outside the earth's atmosphere for an indefinite period without addition of further energy. It would revolve around the earth in a manner similar to that of the moon. Such an

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Elements: John Wiley & Sons, New York.

13. Miles, Frank J. and Sumnerfield, Martin: The Problem of Noise from the Jet in the Jet. *Journal of the Acoustical Society of America*, Vol. 11, No. 8, August, 1947.

16. Cummings, G. Analysis of Turbine, Propeller and Exhaust of the Atmosphere. *Engineering in Airframe*, Vol. 1, No. 8, Air Force Project Rand, Rand Corp., Santa Monica, Calif., Nov. 8, 1948.

17. Tins, H. Air Force Project Rand, Rand Corp., Santa Monica, Calif., Nov. 8, 1948.

18. Thomas, Frederick Emerson. Radio Engineering, 2nd Ed. McGraw-Hill Book Co., Inc., New York, 1937.

## Spanish Airliner

Prototype of the two-engine Alcatraz is planned to be first Spanish transport built entirely from domestically produced parts in reportedly endearing test flight near Madrid.

Craft was constructed at the Getafe factory of Construcciones Aeronauticas S. A. and is the first unit of the CASA 350 series.



Prototype F9F is tested in platform and modified for thrust tests by Grumman engineers.

## Jet Thrust Measured On Ground

Floating platform, "Thrustorg" unit, used to measure thrust of Grumman F9Fs running at full power.

A float-and-suspension platform, enabling engineers to measure precisely static thrust of the F9F-2 and F9F-3 on fighters while the craft are operated at full power on the ground, has been developed by the Grumman Aircraft Engineering Corp., Bethpage, L. I., N. Y.

One of the final "check points" through which each production model of the "Fambler" float test, this platform incorporates a load-measurement system which bears the full thrust of the plane and compensates with one pressure in a field of air craft motion. The float is designed to measure static thrust of the

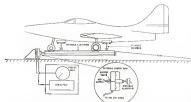
modified subsonic aircraft after the pre-test designed 16-passenger Douglas DC-3. It is an all-wood plane having a 75-ft wingspan and powered by two 450-hp engines of Pratt & Whitney type. DC-3 had two 400-hp engines.

Alcatraz is designed for a top speed of 257 mph, cruising speed of 174 mph, and a 625 mi. range. It is powered by two 450-hp engines, 18 passengers, and a total payload of 4,555 lb.

An official of the Spanish national airline, has said that the carrier is now solving engineering items. Alcatraz for domestic service.

According to the manager of Construcciones Aeronauticas, the company is Getafe plant is turning out one (10) every six days. He claims that with sufficient demand, the two factories at Getafe and Seville could construct 100 units per year.

Company plan to build two more prototypes, the CASA 352 with 730 hp engines and capable of carrying 16 passengers, and another plane powered by two 1,000-hp engines with a 25-passenger capacity.



Schematic view of thrust stand showing suspension fixture and details of ligament.

is a pneumatic-hydraulic force meter, known as the "Hugon Thrustorg," which "reads" and measures the force thrust. Principle features of the unit are a non-metallic flexible diaphragm and poppet valve.

Thrust of the plane is applied to one end of the diaphragm, and air pressure put sufficient to balance the thrust-to the other. An pressure required to obtain the balance is taken in a direct manner of the thrust. The pressure is measured into the diaphragm

chamber by the poppet valve, which is controlled by the position of the diaphragm.

A 0.100-gm. precision gas indicator measuring output pressure. The system is presented by a standard or bottle equipped with a regulator. Also provided are a reducing valve, air filter and air flow. A sensitive valve indicates the air in the system at end of test.

In preparation for the test, the craft is pulled up a ramp into the suspension platform and secured. The craft

which is fixed to hang the thrust line of the plane within a 1-degree of horizontal. The craft is backed out until a cross-hatching bolt on the platform makes contact with the diaphragm of the Thrustorg. With an pressure applied on the diaphragm, the device "reads" making an cracked then a steady, and the bolt locked in place. This adjustment nullifies the effects of wind and temperature on gas readings.

The Thrustorg was developed actually for engine testing by the Hugon Corp., Pittsburgh near the end of the World War II. It is now used in the industry to determine and analyze without weighing and a variety of force-measurement functions. The device is stated to be practically maintenance free because of the absence of parts subject to friction.

## C-47 Gross Up

(McGraw-Hill World News)

Bendix-McCormack (pneumatic) gas weight at Douglas Dakota (C-47), which handle most of the commercial air traffic, has been raised to 25,200 lb. from the previous 25,000 lb. limit. Dakota handling and freight only (no passengers) now load up to is high as 26,000 lb.

## JUST LOOK AT THESE FEATURES—

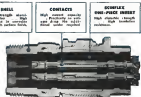
# BENDIX-SCINTILLA ELECTRICAL CONNECTORS

the Finest money can buy!

Contains that carry maximum currents with a minimum voltage drop are only part of the many new advantages you get with Bendix-Scintilla Electrical Connectors. The use of "sterile" dielectric material, an exclusive new Bendix-Scintilla development of superconducting insulating, increases resistance to moisture and corrosion. In temperature extremes, from -67°F. to +360°F., performance is remarkable. Dielectric strength is more than 300 volts per mil. Bendix-Scintilla Connectors have fewer parts than any other connector on the market—and that means lower maintenance costs and better performance.

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Direct, New York  
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## CHECK THESE OTHER ADVANTAGES

Maximum proof - Pressure tight - Seals - Durable - Single-piece design - Vibration-proof - Light Weight - High insulation - Resistance - Easy Assembly and Disassembly - Space-Performance only other Connectors - No additional solder required



## NEW AVIATION PRODUCTS



### Switch-Lamp Unit

Combination pushbutton momentary contact switch and indicator lamp, type A204, developed by Robert Hetherington & Son, Inc., Sharon PA, is designed for use with fine detection and extinguishing systems. When fire occurs, light flashes and switch is

pushed to discharge extinguisher. Lamp can be used as pilot light to show that a particular system is in operation after switch has been closed. Light is operated independently of main switch contacts and, if connected to holding relay, will go out when relay opens.

Switch is rated at 15 amp, 30v a.c. or d.c., and can be supplied with 6, 12, or 24 lamp. Translucent light housing comes in white, red, green or blue.

### Gyro Sensing Switch

Electronic a.c. switch offered by Lutz, Inc., 110 Iowa Ave., Grand Rapids, Mich., is added to its push-button adaptable to gyro sensing circuit for establishing a vertical for any type of vertical gyro. Designed for operation on 30v, a.c. 400 c.p.s. gyro has four contacts possessing four different contacts to be mounted in varying amounts, with respect to one another as switch is tilted from level.

Features of device are high sensitivity—1 mV/0.01 deg. deviation in rotation from level position, low no-

ise—about 50 ohms at maximum, 100, long life—over 1000 hr. at 200 F., light weight—76.5 grams, and small size—4.63 in. thick, 1.185 in. dia.



### Nuts Speed Assembly

"Barless Speed Nut", produced in continuous steps to permit faster assembly of parts have been announced by Tannousian Products Inc., Cleveland, Ohio. Product is strip of pre-tensioned spring steel into which flat type fasteners are stamped a partial disc separating each end. Operator breaks strip from loading fastener as it is tightened.

- Operator cleans these advantages.
- Loading fastener is at tip of screw driver at 14 times, eliminating need for picking up unit and placing it on work.
- Since fasteners are together on long strip there is less chance of dropping parts on floor.
- Locking nut and starting screw is facilitated by strip form.

### Tough Sheet Packing

"Plastic" compressed asbestos sheet packing No. 2515, offered by Gleason, Tread & Co., North Wales, Pa., is reported to have strong resistance to heat, oil, solvents and gas leakage to alcohol-water and ethylene glycol-water solutions.

Material, developed in conference with AN Annular Seal Spec. AN G 171 Class 1, is also stated to be highly resistant to adhesion, such as from Product is available in thicknesses of 1/16, 1/8, 3/16 and 1/4 in., in sheet sizes 42 x 60 in., 60 x 60 in. and 60 x 126 in. It also can be supplied in gasket form.

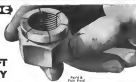
Tensile strength, with grease, is accepted as 6150 psi, compressibility (1000 psi), 10 percent, recovery (no load) 98 percent, bend (180 deg.) does not crack, tensile strength with grease, after oil immersion, 7190 psi, after ethylene glycol immersion, 5100 psi, after water alcohol immersion, 1990 psi.



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**SELF-LOCKING NUTS**

**FOR THE AIRCRAFT INDUSTRY**



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ACCOMPLISHES FLEXLOC is officially approved and accepted by many U.S. Government, business agencies and the ICA.

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# J47 Axial-Flow Turbojet Engine

## ...Another FEATHER-WEIGHT OIL COOLER Application

Working closely with General Electric, Clifford designed and built an entirely new pressure-resistant aluminum oil cooler for the J47 axial-flow turbojet engine. Whereas oil coolers for conventional type aircraft engines generally require installation to only 500 lb. surface pressure, these new coolers called for ability to withstand 500 lb. pressure or even more.

In the "high" speed tunnel laboratory, largest and most modern in the aeronautical heat exchanger industry, tests ranged of coolers are holding 1000 lb. extra assurance of satisfactory performance under actual flying conditions.

Inquiries regarding FEATHERWEIGHT all-aluminum oil coolers for your application are invited. CLIFFORD MANUFACTURING COMPANY, 115 SPRING ST., CAMBRIDGE, MASSACHUSETTS. Divisions of Balfour, Beatty Corporation, Offices in New York, Detroit, Chicago, Los Angeles.

The powerful General Electric J47 axial-flow turbojet engine, rated more than 2000 BHP, is designed to give exceptional power for the J47-100-1 engine.

# CLIFFORD

ALL-ALUMINUM OIL COOLERS  
FOR AIRCRAFT ENGINES  
HYDRAULICALLY-FORMED BELLOWS  
AND BELLOWS ASSEMBLIES



## PRODUCTION

### Getting More Profit—Via Research

Devising new fabrication methods for aircraft special materials can lead to additional lucrative production.

Properly directed research can mean new opportunities for profits for machine shops.

Not enough of the established pattern supplier industry realize the potential that can accrue by devising from their specialized skills to keep pace with the ever increasing demands of new aircraft, engines, equipment, and materials.

To widen the scope of work acquired that the supplier faces a search must of need, and every means grasping his way on a trailhead—new ideas to solve new problems. But this roadwork can pay dividends.

It did for American Non-Gray Brass Corp., Brown, Pa., to increase its total value of business considerably.

The company was founded about 40 years ago and had specialized in cutting and fabricating a non-ferrous brass alloy. Much of its product originally went for automobile applications, later for aircraft parts such as valve guides, connecting rod bushings, and other bearing installations on reciprocating engines. Today, about 90 percent of its business lies in the aircraft field.

Start—It made Non-Gray brass parts for Pratt & Whitney back in 1925. A switch was made by 1940 to beryllium-copper for valve guides on its high-powered R-4360 engine in late '47. It was a longer valve life.

The change was dictated after experimenting with beryllium-copper and Non-Gray valve guides in different cylinders of a test engine ran under an over-loaded condition for approximately 50 hr.—a situation more severe than would be encountered in normal operation.

Results showed that the valve with the beryllium-copper guide has superior characteristics for this specific application—no subsistence, because of the metal's greater heat conductivity, and so on.

No Experiences—Contracts for valve guides were awarded to American Non-Gray and another organization. The latter subsequently withdrew because of fabricating problems and Non-Gray took over all the work—with all the difficulties. For three years an experience available from which to draw for making the part from beryllium-copper on a production basis.

Initial trials gave poor results—being

the wall of old inventors in the company took couldn't be sustained with steady cool to keep the beryllium-copper from leaving into the cutting edge. This gave a rubbing action, drilling the tool and frequently causing it to stick.

Other Trouble—Sometimes effects were so much that hot and gas drifts behind considerably about the length of the tool. And the beryllium-copper frequently would "break" in the end so that the latter would have to be ground.

Toolmakers who were called in could offer little help, since they had no experience with beryllium-copper parts on production runs.

After considerable time and money—recommencing experiments—results did not meet procedure—the problem finally was solved with tool redesign for developing proper clearance and rake, and determining proper feed and speed.

Surface fit was of material removed, varying from 150 to 200 for the range of operations from roughing to finishing.

cost, was found to be a comparatively slow speed in relation to improvement with normal bourse.

That the resulting problem was a difficult one is further confirmed in that very few organizations are fabricating valve guides from beryllium-copper.

Though there was a continuing demand for its regular Non-Gray product (1940) used in a majority of engines where power requirements do not need the extremely high conductivity of beryllium-copper, the company found it profitable to devote time to long knowledge, in one area and take on a typical problem with another.

## Permanente Buys Aluminum Plants

Permanente Metals Corp. moved for their own the several plants owned here since last week when it purchased three government-owned aluminum plants for \$10 million through War Assets Administration.

Permanente includes:  
• Aluminum plant at Baton Rouge with several capacity of 500,000 tons of aluminum from bauxite (Original cost \$70 million).  
• Metal recovery reduction plant, Spokane, with annual capacity of 210 million lb. (Original cost \$14 million).

• Turnwood rolling mill, Spokane, with annual capacity of 235 million lb. (Original cost \$47 million).



SUPERSONIC FLOW TESTS MOVE OUTDOORS

As tests out of its results at 1250 mph. in the supersonic airflow test installation outside of Curtiss Wright Corp.'s Columbus plant. Engineers (center) adjust calibration stand supporting aerodynamic shape.

while one tightly focuses camera on instrument panel which registers pressure and other data. Headphones are worn to protect ears from deafening search when exposure facility is operating.







## AIR TRANSPORT



### Canadian Jet Transport Flies

Cruising speed of 430 is quoted for 50-seater four-jet craft. Project was financed by Avro and government.

Better's lead in jet transport design was crowned a bit when Canadian Avro's sleek 50-passenger XC-102 jet liner made its first flight at Malton, Ontario, on Aug. 16.

Public flight scheduled for tomorrow was postponed when the jetliner hit work made an emergency belly landing following a two-hour flight. Fuel was reported to have gone out and the plane was forced to come in with nosewheel extended when main gear refused to lower. Little structural damage was suffered.

The four jet, all-metal plane took to the air just two weeks after the British 70-passenger de Havilland Comet (Aviation Week, Aug. 8). Jimmy O'Neill, chief test pilot of A. V. Roe Aircraft Co., Manchester, England, who came over to make the tests, reported the Canadian ship handled "really and

sturdily" during the 60 minutes it was aloft.

► **430 Mph. Cruising Speed**—A short test confirms range craft, in contrast to the long-range Comet, the XC-102 is designed for cruising at 430 mph at 50,000 ft. Power is supplied by four 5400-hp state-of-the-art Rolls-Royce Derwent V turbojets.

Wing span of the jetliner is 98 ft. 1 in.; length is 82 ft. 7 in.; and height (to top of tail fin) is 35 ft. 5 in. Take-off run of less than 4000 ft. compares favorably with contemporary transports.

During its first flight, the low-wing transport cruised at 350 mph at 17,000 ft.

During build work on the postponed all-steel 52,500-lb. transport began at A. V. Roe Canada's Malton plant in mid 1946. The XC-102 ac-

portedly conforms to domestic requirements of Trans-Canada Airlines, although Avro Canada officials say they do not plan to offer the plane to interested clients "until it has met every test and trial."

The jetliner is now entering a period of shutdown tests to qualify for its airworthiness certificate.

► **Early New**—Walter Decker, Avro Canada's vice president and general manager, said the XC-102 is "an entirely new aircraft and the product of Canadian engineering and technical skill."

When the plane's design was first drawn, engineers applied much of the British Avro Tutor technique. But design progressed rapidly, and now covers very little to the original British concept.

Cost of the ship is being borne by the Canadian government for the Royal Canadian Air Force and by Avro Canada.

### Pilot Security

Carrier's power to fire is safety aid, ALPANA reference rules.

Emphasizing management's broad responsibility in maintaining the highest possible standards for flight personnel, a neutral referee has settled the controversy which kept the Air Line Pilots Assn. and National Air Line Pilots Assn. in a deadlock for nearly two years.

J. L. Bradshaw, who was appointed last November by the National Media Board to break a company-management deadlock, decided that NAL

### the Cutlass

This new Chance Vought fighter, now undergoing performance tests, is expected to be the Navy's fastest.

**CHANCE VOUCH AIRCRAFT**  
BALTIMORE, TEXAS

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION



was prohibited in discharging ALPA member Milton G. O'Neal, Jr., following an accident at Tampa, Fla., on Sept. 13, 1945. O'Neal's discharge, the airline declared, "was in good faith, for proper cause, and in the interest of safety. It was not arbitrary, malicious, discriminatory or capricious."

A first pilot, O'Neal was in command of a Lockheed Lodestar which went off the runway and crashed into a Tampa Bay canal. None of the plane's 17 passengers was injured.

► **Poor Judgment Seen**—The airline's defense declared that the accident was caused by O'Neal's poor judgment in making a tight turn from Runway 17 to Runway 5 and in landing the air-

craft at an excessive speed in a tail high attitude too far down the wet runway. He said O'Neal's action resulted in destruction of the plane, endangering the lives of those aboard.

O'Neal was discharged two weeks after the accident. The Air Line Pilots Assn. then alleged that the dismissal was unfair, arbitrary and in violation of the company union employment agreement.

In November, 1945, the dispute was submitted to a five-man board which because docked ALPA pilots struck National in February of last year, staying out until November, when company and union agreed to arbitrate the O'Neal case to arbitration.

with a mental release. During the strike—largest in airline history—an emergency board appointed by President Truman criticized NAL's labor relations policies and ordered the suspension of failing to go halfway with ALPA in trying to settle the O'Neal affair.

► **Management Duty**—Board's decision and it is the absolute duty of airline management to see that no less than the highest degree of care is maintained by its pilots. "How strict each carrier should be in compelling and seeing that its pilots the highest degree of care is a matter of policy to be established by each company."

"All the same in the discharge of its responsibility decides briefly and in good faith that one of its pilots is inadequate, its judgment may not be disturbed solely on the confusion that the company shall not act arbitrarily, discriminatorily, maliciously or capriciously, it is the company's right to err on the side of safety in discharging a pilot who in its honest judgment has demonstrated his inadequacy for the position of pilot."

The national referee noted that the peril of the air is no less than the peril of the sea, and that when a captain loses his ship through his handling of it he is not given command of another vessel. "In the change of contract positions to the contrary, it cannot be said that the application of this tradition of the air to a pilot in command of an aircraft carrying human beings is either arbitrary, capricious or malicious."

► **Job Security**—Board's emphasis he was not successful of the paramount importance to the pilot of job security, but he asserted that this job security must be consistent with the public interest. The fight waged by ALPA to have O'Neal restored to his position of first pilot is in the best interest of airline tradition, the airline added.

"That enforcement by the company of the highest standards of responsibility by its pilots will be useful to them just when they take a chance they not only risk their lives and the lives of the passengers and crew entrusted to their care, they also risk the loss of their jobs. It is a matter of common knowledge that where men are not hesitant to take a chance with their lives they will think twice before risking the loss of their jobs."

► **Airline Problem Unique**—"If this had been a case of a workman operating an expensive lathe or any other expensive piece of equipment which was destroyed by misuse of the machine's necessary maintenance to his work as a logic in his efficiency, and it was his first accident, my inclination

in the absence of special circumstances would have been to give him another chance and restore him to his job."

But the nature of the air carrier industry, its hazards involving the safety of passengers and crew whose lives are in the keeping of the pilot, and the airline's primary responsibility to the public for that safety are such that I may not, in the absence of correct procedure in the cockpit, project my sympathy for that of management unless there is adequate proof that management has acted in bad faith."

## Western Forms Intrastate Line

Western Air Lines is taking part in a California initiative as coach service against the competition of the half-dozen unaffiliated airlines now operating intrastate services on the West Coast.

A new corporation, Western Air Lines of California, Inc., has been formed to operate the coach flights. Headed by the V. O'Brien, the company will distribute aircraft and facilities from WAL. It was to start daily roundtrips between Los Angeles (Burbank) and San Francisco-Chico on Aug. 19.

► **High-Speed DC-4s**—One-way fare on the revised WAL DC-4s will be \$2.95—equal to the low fares offered by the unaffiliated lines operating between Los Angeles and San Francisco. (Five on Western's regular flights between Los Angeles and San Francisco on 521.) The DC-4s will seat 575 passengers and carry regular WAL personnel as captain, first officer and stewardess.

Among the monies offered by Western Air Lines of California is a traveling arrangement which will enable passengers to purchase coach transportation at any Western Union office in the Los Angeles and San Francisco-Chico line. Tickets also will be on sale at regular WAL offices and at authorized travel agents.

► **High Standards Set**—The new company emphasized that its operation will be entirely the same as that of a certified airline service from the standpoint of management, dispatching and communication. Insurance protection for Western's California's coach passengers will be the same as that offered on regular intrastate flights. Western Air Lines has recently entered the safety standards of certificated intrastate carriers in California (Aviation Week, July 11).

## TWA, Capital, WAL Using Black Ink

Three more airlines—TWA, Capital and Western—have joined the long list

## Safeguarding Aircraft Electrical Systems



Photo shows how circuit breaks are provided for the B-26 with the installation of Burndy Type F-1 Limiters.

As a safeguard in flight, today's modern aircraft electrical system is Burndy-Limiter protected. These vital circuits "fuse" every temporary overload but clear promptly under short circuits. They are particularly recommended for systems which use multiple conductors per phase for, when Limiter protected, a fault on a single wire is cleared without interruption of current in the leg of the circuit.

The close co-ordination of these highly accurate Limiters, unlike other thermal devices is little affected by the variation of ambient temperatures, that they provide greater protection with the least weight and space.

Limiters and mountings are offered for 30-volt and 130-volt DC and 120/208-volt, 400 cycle AC systems in various ampere ratings. Burndy Limiters meet the requirements of USAF Spec. Nos. 32593-A, 32596-B.

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Enlarged photo view of Edison Fire Detector showing simple construction—no moving parts.

Edison Fire Detection is the only fire detection system which uses thermocouple detectors—the only detectors that contain no contact points to vibrate or corrode.

### Note To Pilots:

Only the Edison detectors contain no contact points that can foul and become inoperative from oil, dirt or corrosion, or that can jar together and flash false alarms. Only the Edison detectors can be tested from the "office" at any time. Only the Edison circuit can ground without alarming. When you have Edison Fire Detection properly installed in a fire zone you know for sure that an alarm means fire. You can depend on the Edison System.



Because the Edison System is as safe, sure and simple, it is used by all but two of the major airlines and has been approved by the U. S. Air Force, U. S. Navy, and conforms to CAA requirements.

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INSTRUMENT DIVISION  
**THOMAS A. EDISON,**  
INCORPORATED



of current financing the first half of 1949 in the black.

• TWA reported a system-wide net profit of \$561,907 during the six months ended June 30, compared with a loss of \$2,066,194 in the same period last year. During the second quarter of 1949, the company earned \$1,621,445 to cancel out last quarter's loss of \$3,269,536.

A \$1,261,253 profit on its national bonded securities was responsible for TWA's good system-wide showing during the first six months of this year. The carrier lost \$988,746 domestically in the period.

TWA's total operating revenues for first-half 1949 were \$51,124,308, com-

pared to \$45,842,778 last year. Passenger revenues increased 15.7 percent and cargo revenues 31.6 percent. Operating costs per revenue ton-mile flown were reduced 8.5 percent from the same in first half of 1948.

• Capital Airlines reported a net profit of \$701,860, or 31.6% of sales of \$2,200,000, during the 12 months ended June 30. The company's net profit of \$740,000 profit realized in April from the purchase of debentures to satisfy accumulated sinking bond obligations.

Capital had a \$394,706 operating profit and \$251,198 net in June to reverse previous-month losses of 37.5 percent over the same month last year. Net working capital of \$1,007,000 on

June 30 was the highest since June, 1946, and represented a \$2,743,880 increase over June, 1945.

• Western Air Lines ended the first six months of 1949 with a \$18,918 profit compared to a \$151,879 loss in the same period last year. A second quarter profit of \$168,467 more than balanced WAL's first quarter loss.

As of June 30, Western's RFC loss had been reduced to \$4,754,920, representing a repayment of 16 percent.

## Idlewild Service Up

Pan American Airways last week planned to inaugurate daily trans-Atlantic service from New York International (Idlewild) Airport, directly following a statement from Governor Thomas E. Dewey that American Overseas Airlines would make its first flight to Europe from the airport.

Both carriers, which are using Boeing Strato-liners, were involved in the recently settled dispute with the Port of New York Authority over flight fees and leases at the airport (Aviation Week, Aug. 15).

Port Authority is now negotiating with Lockheed Aircraft Service Corp. over an international maintenance facility at the field.

## Prototype Bill

CAA head disclaims need for government aid in new designs.

The Civil Aeronautics Administration will not pass for immediate action on legislation authorizing a government-financed commercial transport prototype program, despite its belief that U. S. leadership in civil aviation is being seriously challenged by developments abroad.

CAA Administrator Delos W. Ransdell made his agency's position clear in a recent statement before the Senate Interstate and Foreign Commerce Committee. He emphasized, however, that CAA would switch to full support of prototype legislation if:

• The armed services had it as a necessary part of the overall military preparedness program.

• Former Senate hearings show conclusively that government aid is necessary to maintain the preeminence of U. S. manufacturers in the commercial transport field.

• Views change—in the past, when the U. S. aircraft manufacturing industry was in relative unchallenged dominance, the Commerce Department supported prototype legislation which had as its objective the dual purpose of promoting air commerce and bolstering national defense, Ransdell noted. "Our

support at that time was predicated on our conviction that in view of the substantial sums required for development of new aircraft, the industry was unable to provide private capital for prototype development.

However, this situation has changed (since 1947). We are now informed that the manufacturing industry generally does not need and does not want the financial support envisioned in the proposed prototype legislation. This change of view is based on the improvement in the industry's financial condition which is largely the result of the increased tempo of the military procurement program. It now appears more probable that private capital could provide for the development necessary to produce new, more efficient transport aircraft."

Ransdell spoke at an executive session of the Senate committee which is investigating the financial position of U. S. airlines.

Also at the closed meeting were Aircraft Industries Assn. president DeWitt C. Ransom, Civil Aeronautics Board chairman Joseph J. O'Connell, Jr., Undersecretary of Defense Stuart E. Harris, and representatives of the Air Force and National Advisory Committee for Aeronautics.

• **Consent Enthusiast**—The CAA chief told the senators that although the British de Havilland Comet is still in the prototype stage and may not be carrying paying passengers until 1952, "it illustrates the unvarnished fact that reconnaissance aircraft inevitably will be superseded in the very near future by turbojet and turbojet transport."

Revelled and present indications are that, contrary to British hopes, the Comet will not be well-received except in the North Atlantic flight between London and New York, rising as its hours. But he expressed no doubt that ECAC, which has 14 Councils in order, will use the 500 mph craft in the Atlantic service even if the immediate stop is necessary.

• **Turbojet Program**—Special attention should be paid to the British turbojet transports, Ransdell declared. Three of them, the Vickers Armstrong Viscount, Armstrong Whitworth Apollo and Handley Page Hermes Maribor, have flown, and the fourth, the Handley Page Hermes V, is being tested for a test flight.

## Committee Approves New Mail Rates

Senate Appropriations Committee has approved \$20,402,000 for domestic and foreign airmail payments required to meet rate increases awarded by the Civil Aeronautics Board for the past two years.

AGAIN! THE THRILL-PAKED EVENT—  
Tinnerman  
TROPHY RACE  
1949  
NATIONAL AIR RACES  
CLEVELAND—SEPTEMBER 2, 3, 4

AS IN YEARS PAST, the Tinnerman Trophy Race will be a feature event of the National Air Races . . . a highlight of the exciting Sunday program.

Ten of the fastest aircraft qualifying for the Air Races will compete for cash prize awards and the gleaming silver Tinnerman Trophy.

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year. The House has already approved the appropriation.

Two months ago, the Senate committee released its agreement to approve the funds to a move to force suspension of aircraft and subsidy payments by CAA, leaving the Post Office without money to make May and June payments to carriers. Several small carriers had to get bank loans until July payments from funds in the 1950 fiscal year Post Office appropriation act could be used.

► **Postoffice Deal**—George Hargens, deputy assistant postmaster general, said that May and June payments will be made as soon as the third delivery bill, carrying the \$20,402,000

apportioned, becomes law. It is allocated: • **Domestic**—\$16,100,000 for the 1949 fiscal year, \$3,201,000 for the 1950 fiscal year. • **Foreign**—\$4,301,000 for the 1949 fiscal year.

## More DC-6s to UAL

United Air Lines has announced plans to buy five more DC-6s costing about \$4,329,000, with deliveries to start next March.

The purchase will give UAL a total of 44 DC-6s and will enable the company to extend service with the 50-passenger planes both domestically and on the run to Hawaii. The new planes will be

actually identical with United's present DC-6s except for a wing-suspension air gap system which will provide greater lateral horsepower.

## Yellow Cab Gets Show Cause Order

Yellow Cab Co. of Cleveland has been ordered to show cause why its three-year temporary franchise to operate helicopter service in the Cleveland, Ohio, area should not be cancelled for failure to activate the routes.

The Civil Aeronautics Board entertained Yellow Cab on September, 1947, to carry passengers and cargo between Cleveland Municipal Airport and downtown Cleveland, and between the airport and the suburbs of Euclid, Ohio, via Shaker Square. Authorizations to carry mail was not included.

Yellow Cab's initial plan to start service with Sikorsky S-51s fell through. Last March, CAB gave the company until July 1 to complete operations, but the carrier failed to meet the deadline.

## Bonanza Fleet For Central Airlines

Central Airlines has purchased a fleet of eight new Beech Bonanzas for scheduled operations over its certificated feeder system in Texas, Oklahoma and Kansas.

Selection of the four-place Bonanzas was made after a series of evaluation tests with the leading types of single-engine equipment available for airline use, according to Keith Kahle, CAB's president and general counsel. Central had also been investigating the possibility of buying five-place Cessna 195s or four-place Ryan Navios.

► **Twistive Price Changed**—In presenting its highlights plan to the Civil Aeronautics Board, Central Airlines unveiled a tentative proposal for strong Cessna 195s, which would have cost about \$16,700 each (Aviation Week, Aug. 30). The company noted, however, that the smaller, four-place Bonanzas could be operated at a direct cost of 5 or 6 cents a mile less than the Cessnas.

Central was slated to take delivery of its first three Bonanzas last week. The other five planes are to be ready by early next month.

Operations headquarters for the feed-line will be maintained at Ft. Worth. The company expects to start service shortly with a fleet of 80 to 90 airplanes, 24 of which will be pilots.

► **Routes Listed**—Central's routes are from Ft. Worth/Dallas to Oklahoma City, Oklahoma City to Wichita, Kan.; Ft. Worth/Dallas to Tulsa, Tulsa to Amarillo, Tex., and Ft.

Worth/Dallas to Texas, Tex./Ark. CAB will be the first U.S. carrier to use Bonanza as scheduled interstate service. A New Mexico operator, Cava Air Service, is using one of the planes for regular intrastate flights from Albuquerque into the state's energy center at Las Alamos.

## Colonial Considers Buying New Planes

Colonial Airlines is considering acquisition of new equipment to blunt the strong competitive thrust of Trans-Canada Air Lines.

Government-owned TCA received permission to operate over the New York to Montreal link (Colonial's best route) in the most highly-contested Canadian-U.S. air transport agreement (Aviation Week, June 11). Colonial now flies New York-Montreal with DC-3s, whereas TCA probably will use four-engine DC-4Ms North Star.

► **DC-4s Eyed**—As a result, Colonial plans to ask the Reconstruction Finance Corp. for a \$15 to \$5 million loan to buy three to five DC-4s, or equivalent planes, to go on the Montreal run.

When the Canadian-U.S. air transport agreement was signed, Raymond Ryan, Colonial's president, charged it was likely to cost the American taxpayers \$1 million in additional subsidy for Colonial, since the company would lose that much revenue to TCA. Early this month (Aviation Week, Aug. 31, 49 U.S. Senators asked President Truman to delay implementation of the pact with Canada "until a method has been devised to remedy damage to American carriers."

Colonial has asked CAB for New York-Washington, New York-Buffalo and New York-Syracuse-Toronto routes to offset losses incurred on the New York-Montreal link, which now accounts for 64 percent of the company's losses.

## Purdue Approved

Operation of a scheduled highplane service between Lafayette, Ind., and Chicago has been approved by the Civil Aeronautics Board.

Carrying out recent recommendations of a Board member (Aviation Week, July 11), CAB gave Purdue Aeronautics Corp., based at Lafayette, a five-year extension to 10 passengers and cargo over the 105-mile route. The operation actively will be terminated at Roscoe Turner Aeronautical Corp., whose feeder certificate includes a Lafayette-Chicago link, starts service.

Purdue Aeronautics Corp. is a nonprofit organization closely affiliated with



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and controlled by Purdue University. The company plans to use four passenger Cessna 440s in its new operation, which will perform the dual function of carrying revenue traffic and training flight students.

CAB said the service will offer a convenient laboratory to test the traffic-generating possibilities of recently-approved single-engine aircraft operations without cost to the government. PAC will not carry cost.

## SHORTLINES

► **Aeromex**—Maintained its position as the leading scheduled carrier by flying 14,991,645 ton miles in first half 1949, a 51 percent gain over the same period last year. Freight revenues in the first six months rose \$2,777,696, up 44 percent over first-half 1948.

► **Capital-TWA**—3,216,636 freight ton miles in first half 1949 for a 77 percent gain over the same period last year. Forty percent of the company's air freight traffic is department store merchandise.

► **Chicago & Southern**—Recently began its 34th consecutive year without a fatal accident. Company has asked the District of Columbia Court of Appeals to set aside CAB's order authorizing Royal Airlines, President, N.C., for overnight revenue operations to Latin America and Canada.

► **Continental**—Stores it is the first U.S. air carrier to have its fleet fully equipped with air-to-ground VHF radio receivers. Cost of equipment and installation was about \$75,000. Company has applied for a certificate amendment to extend its Denver-Kansas City route to St. Louis. CAB has approved consolidation of Routes 29, 41 and 68 into a single Route 29, permitting savings through elimination of redundant stops at certain route points.

► **Fancy Air Freight Corp.**—The New York freight forwarder reports \$34,338 net profit in first half 1949 against \$673 profit in the same 1948 period. Revenues were \$753,641 against \$738,527.

► **Item**—The government-owned Spain air line has asked CAB for a change in carrier permit to stop at San Juan Puerto Rico, on a Madrid-Caracas-Puerto Rico-Madrid route.

► **NBA-Continental**—Discontinued its Kirtland City Twin Cities stopover on Aug. 11 after a five-month trial period showed the operation to be uneconomically profitable.

► **Northwest**—Expected July earnings to wipe out its first-half loss of \$119,101. Passenger traffic in the first week of

August won 27 percent over the same period last year.

► **Northwest-Cargo** volume to Alaska increased 810 percent in first-half 1949 over the same 1948 period. International cargo traffic rose up 174 percent, and domestic cargo traffic gained 140 percent.

► **Pan American**—A PAA Synchronous service from Garden, Newfoundland, to London in 6 hr., 52 min., can save 32 minutes off the previous record set by a BOAC Constellation. Two days later, another PAA Synchronous clipped four minutes off the mark.

► **Pediatric**—Five 1951 passengers in July against \$559 in June and \$594 in July, 1948.

► **Skyways International**—Trading & Transport Co.—Baltimore—has announced the huge freighter service will be sold in Miami this month.

► **Southeast Airways**—President John H. Connolly stated at a recent CAB hearing that he considers a merger with West Coast Airlines a "good idea." Such a consolidation would create a single-joint network from Bellingham, Wash., to Los Angeles.

► **TWA**—Civil Aeronautics Board has awarded the company about 53 million additional temporary mail pay for trans-Atlantic service between Feb. 5, 1948, and Dec. 31, 1949, in accordance with a show-cause order issued last month (AVIATION WEEK, Aug. 1).

► **United**—Revenue passenger mileage in July was up 16.5 percent over the same month a year ago, but 5.5 percent below June of this year. July passenger load factor was 72.5 percent against 66 percent in July, 1948, and 81.5 percent in June, 1949.

## CAB SCHEDULE

**Aug. 15**—CAB resumed its service to Vermont Route 70 (Docket 2101, 41-42).

**Aug. 17**—Closing on extension of Chicago Airline Interconnecting Airline-Elmwood for air carrier permits. (Docket 2111)

**Aug. 18**—Closing on Trans-Continental Air Line application for landing air carrier permit to operate from Montreal to New York (Docket 2044).

**Aug. 19**—Hearing on service to Lake Tahoe, California (Docket 2100).

**Aug. 20**—Hearing on CAB consideration of International Air Transport Association petition. (Docket 2104).

**Aug. 21**—Hearing on air freight trial agreement case. (Docket 2118, 41-42).

**Aug. 22**—Hearing on American Airlines request to Burlington, Mass., through Boston, Mass. (Docket 2141).

**Aug. 23**—Hearing on Southwest & Western Air Transport Air Line application for air freight certificate, between the D.C. and Mexico. (Docket 2044).

**Aug. 24**—Hearing on National of Pacific Air Line permit. (Docket 2101, 41-42).

**Aug. 25**—Hearing on Trans-Continental Air Line application for air freight certificate, between the D.C. and Mexico. (Docket 2044).

**Aug. 26**—Hearing on Western-Airline mail case. (Docket 2104).

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## EDITORIAL

### Unforgivable Injustice

After a week's intense hearings on Capitol Hill, Congressman James Van Zandt's repeated public warnings of irregularities in the B-36 procurement program sound flat, indeed.

Van Zandt, a Republican from Pennsylvania, and a Naval Reserve officer, several times recently called attention to "silly rumors" circulating regarding the B-36 and Defense Secretary Johnson, Air Force Secretary Symington, and Consolidated Vultee's Floyd Collins. The detailed charges have all appeared previously in *Airman's Week*.

Under pressure, however, Mr. Van Zandt finally conceded that he had based his complaints and demands for a House investigation on an anonymous two-page letter, and on newspaper clippings. Mr. Van Zandt also denied that he had actually made any charges whatsoever.

The House Armed Services Committee chairman, Mr. Vinton, however, pointed out the congressman's speech in the Congressional Record had reported possession of information from sources Van Zandt "could not ignore."

At this point, under the chairman's prodding, the congressman began to read from a newspaper column by Drexler Walker, in the New York Daily News, and from another story in a Philadelphia newspaper. The anonymous letter, which, Washington newsmen are convinced was prepared by personnel in or friends of the Navy, completed Mr. Van Zandt's evidence.

As the Washington Post asserted editorially, "The unwar aspect of the B-36 investigation was inevitable to failure because it was so flimsily grounded. . . . The attempt to impinge Mr. Symington's motives in backing the B-36 cannot be dissociated, of course, from the spite exhibited by certain Navy sources after Secretary Johnson's order cancelling the super-carrier. Mr. Van Zandt's part as their spokesman is made circumstantially clear by his continual heckling of the Air Force and the fact that he is a Naval Reserve captain. What has been advanced so far has been fabricated of rumor and is as full of holes as a Swiss cheese. No one has yet produced anything to show that the determination to concentrate

on the B-36 was not a decision hastily arrived at."

Mr. Symington rightly feels, as he said after Mr. Van Zandt's evidence collapsed, that the anonymous letter has "hurt the Air Force and therefore the security of the United States. I do not wish to minimize that fact. . . . It leads to doubt as to whether the armed services offer a career attractive to men of integrity and ability. It tends to put a premium on safe inaction rather than on courageous action, upon keeping everybody happy rather than serving the national interest.

"The timing of the attack upon us could not have been more ingeniously arranged if there had been a deliberate plan to weaken the Air Force position with regard to the fiscal 1950 budget now before Congress and the fiscal 1951 budget now in preparation within the National Military Establishment."

All of this must not be considered argument against a full inquiry into a matter of vital public interest. *Airman's Week* as long ago as last March on this page reported serious differences of opinion among distinguished aeronautical engineers on ability of the super-bomber to do what the Air Force claimed for it. At that time we urged an impartial test by experts to learn the truth. In the meantime, the Air Force has released additional performance figures, some of which are astonishing. It may be that the House committee will still deem an impartial test advisable.

But the real problem the committee must study is: What kind of an air war should this nation plan? How best can we implement that plan?

The American people certainly deserve the facts about such a plan, within certain limits of necessary secrecy. Mr. Johnson and Mr. Symington would be the first to concede this. But the persistent evolution of inconsistencies and costly moves by a congressman of the United States is a deplorable springboard for any such inquiry.

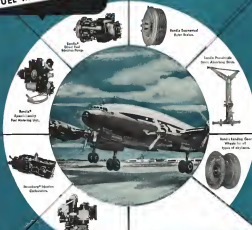
If one week's intensive inquiry is any criterion, Mr. Van Zandt has done the country, shipowner, the Air Force, and the Navy, an unforgivable injustice.

ROBERT H. WOOD

AVIATION WEEK, August 22, 1949

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